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ABSTRACT

This paper reviews the Acquired Brain Injury (ABI) Program at Coastline Community College (California). The ABI Program is a two-year, for-credit educational curriculum designed to provide structured cognitive retraining for adults who have sustained an ABI due to traumatic (such as motor vehicle accident or fall) or non-traumatic(such as non-age-related stroke, brain tumor or infection) injuries. An average of 240 students attend the program annually, meeting four mornings per week for two 18-week semesters and a six-to-eight-week summer session, earning students six units per quarter. The program teaches students strategies to compensate for deficiencies in: (1) verbal skills; (2) figural skills; (3) attention; (4) memory; (5) critical thinking; and (6) organization. It emphasizes the application of these skills to home, school, and work environments, with a strong focus on emotional adjustment to brain injury and on appropriate psychosocial skills. This paper addresses program effectiveness, student and family satisfaction, and program reputation, and also provides case studies and information on access, retention/completion/transfer, outcomes, and support services. (AS)

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Coastline Community College Acquired Brain Injury Program

Coastline Community College

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COASTLINE COMMUNITY COLLEGE
✦
ACQUIRED BRAIN INJURY PROGRAM

1998 EXEMPLARY PROGRAM AWARD APPLICATION

INTRODUCTION

Coastline Community College's Acquired Brain Injury Program is nationally recognized for its cost-effective educational model of successful cognitive retraining of adults with brain injuries. The program has been awarded three grants from the Department of Education's Fund for the Improvement of Postsecondary Education (FIPSE), the last of which allowed the packaging of the program for dissemination. Three colleges are already replicating the components of Coastline's program, and three other institutions have already purchased the materials to begin adopting the Coastline model.

PROGRAM DESCRIPTION

Since 1978 Coastline Community College has served students with ABI by offering a two-year program of special classes, also known as the Traumatic Head Injury (THI) Program.[1]

Coastline's ABI Program is a demanding, two-year, Credit-FTE-generating educational program designed to provide structured cognitive retraining for adults who have sustained an ABI due to traumatic (such as a motor vehicle accident or fall) or non-traumatic (such as a non-age-related stroke, brain tumor or infection) injuries. In most cases, impaired attention and concentration, memory, language and/or reasoning skills prevent these individuals from resuming even minimal pre-accident activities. Awareness of limitations and of shattered career and personal goals leads to frustration and depression--further contributing to the individual's unemployment, isolation and alienation from friends, families and community.

Each year, an average of 240 students attend the program, which meets four mornings per week (earning students six units per quarter), and includes two 18-week semesters and a six-to-eight week summer session. Coastline's program teaches students

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[1]The program is in the process of changing its name to the Coastline ABI Program, to reflect updated nomenclature. It is housed in Coastline's Special Programs and Services for the Disabled department, and funded in part by state Disabled Students Programs and Services (DSPS), per AB-77 provision, and in part by General Fund dollars.

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strategies to compensate for deficits in:

- Verbal Skills
- Figural Skills
- Attention
- Memory
- Critical Thinking
- Organization

In addition, the program emphasizes the application of these skills to practical, real-life home, school and work environments, with a strong focus on emotional adjustment to brain injury and on appropriate psychosocial skills.

Direct Effect on Students

Effectiveness. Coastline has assessed and demonstrated the efficacy of the program both by external evaluation and through its own internal program review. As part of the last FIPSE grant, independent evaluator Dennis Reeves, Ph.D.[2] supervised the statistical procedures for determining program effectiveness. Dr. Reeves' assessment reveals that the program works extraordinarily well. He compared students' scores on a standardized computerized test of cognition (MicroCog) before admission to the program (pre-test scores) with their scores after completion of the program (post-test scores).[3] The sample consisted of 9 males and 9 females whose premorbid education ranged from 12 years to 22 years. There were 15 participants with 12 to 14 years of education and 8 participants with post-baccalaureate training. The students' brain injuries were classified into two categories: Traumatic and Atraumatic. There were 10 individuals with traumatic injuries and 8 individuals with atraumatic injuries.

Students' level of accuracy and proficiency improved significantly after completing the THI Program, $p<.006$.[4] Scores in the areas of reaction time, attention, reasoning, and spatial processing showed a trend in the direction of improvement from pre- to post-test. eback Col‰ memory scores were significantly improved between test administrations, $p=.015$. The MicroCog contains five sub-domains of memory. Analysis of these sub-domains indicated a significant improvement in delayed story recall, $p=.009$. These

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[2] Dr. Reeves holds the position of Department Head, Department of Clinical Research, Naval Medical Center, San Diego, where he is also the senior neuropsychologist in the mental health service line. He is also a licensed clinical psychologist who holds a doctorate in Experimental Psychology and has completed a post-doctoral fellowship at Georgetown University.

[3] This relatively small sample was limited to students who began and completed the program since the new curriculum had been implemented; additional data are being gathered and analyzed every nine weeks. SPSS (Windows version), paired t-tests and linear regression were performed. A Bonferroni procedure was used on multiple *t*-tests to control the alpha level at .05.

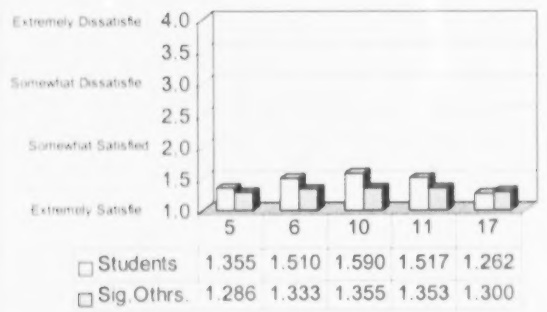
[4] This amazingly low "*p*" value indicates a probability of less than 0.6% that the differences between pre-test and post-test scores are due to chance.

results suggest that students' ability to recall information after a delay is significantly improved by participation in the ABI Program.

Student and Family Satisfaction. In the fall of 1997, the College surveyed students as to their satisfaction with the ABI Program. The study used a four-point scale in which a score of 1 meant "extremely satisfied" and a score of 4 meant "extremely dissatisfied." Out of 63 respondents, 73% rated their satisfaction with the ABI Program (overall) "extremely satisfied," while 25% rated it "somewhat satisfied" (mean response = 1.26). One student marked "don't know"; not a single student chose "somewhat dissatisfied" or "extremely dissatisfied." Student survey responses to critical items are found in Figure 1.

The college also surveyed students' significant others (e.g., parent, spouse, sibling). Out of 42 respondents, 69% rated their satisfaction with the ABI Program (overall) "extremely satisfied," while 24% rated it "somewhat satisfied" (mean response = 1.30). One respondent was "somewhat dissatisfied," while two respondents marked "don't know." Selected significant other responses can be found in Figure 1 along with student responses.

IMPACT OF THE PROGRAM



Qualitative data. The following case examples represent both current students and recent graduates:

- A 40-year-old, alcoholic high school dropout was hit on his motorcycle. Prone to fits of rage, his accident and the resulting mental impairments only increased his anger. Now, through the ABI Program, he has learned to control his emotions and to organize his thoughts. He went back to school for his GED, then returned to receive an actual high school diploma with honors. He is now earning A's and B's as a student in Saddleback College's Chemical Dependency Counselor program.

- In her early 30's, a former mortgage banking executive suffered a stroke. While at Coastline, she coped with severe depression and re-learned critical thinking skills. She is now an A student at Saddleback College, assists in the ABI Program's fundraising efforts, and plans to pursue a career in a helping profession.

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- A collision in a swimming pool ended the teaching career of a woman in her 40's. Her attention, organization, and memory were impaired. She could not even find her car in a parking lot. Through Coastline's ABI Program, she developed compensatory strategies which have allowed her to become a top student at Orange Coast College. She is preparing to work with ESL students.

- An automobile accident left a young Cal Poly Pomona student with slowed speed of processing and attention deficits. She has applied the organization and critical thinking skills learned in Coastline's ABI Program to her classes in Coastline's Legal Assistant program, and is earning high grades, performing far better than she ever did before her accident.

- A surgical nurse in her 40's found returning to the operating room impossible after an aneurysm caused her problems in language and processing speed. With the help of Coastline's ABI Program, she has begun to work on a master's degree from California State University Long Beach. She is an excellent student, works part-time as an instructional aide in the ABI Program, and will be able to coordinate services at a high school for special needs students transitioning into the community after she finishes graduate school.

- A yacht designer and builder in his 50's faced daily bouts of depression, confusion and hopelessness following a boating accident. In Coastline's ABI Program, he has learned vital skills to assist him with critical thinking, organization, and coping with depression. He was thrilled to "give back" to the program by filming a video about the program with his classmates (enclosed). He credits skills learned in the program with enabling him to return to the yachting industry.

Program reputation. Coastline, the first community college in the nation to offer a cognitive retraining program for students with ABI, has long been recognized as a leader in the field of educationally-based brain-injury recovery. The program has been cited on the floor of the United States House of Represented and was featured on ABC's *Good Morning America*, on National Public Radio, and on the Los Angeles local public television station's KCET's *Life and Times*. It appears frequently in the *Los Angeles Times* and other local newspapers (see attached example). Program staff members routinely receive inquiries and requests for assistance from educational institutions (all levels) as well as individual professionals, head injury associations, and other professional groups from across North America. Two different groups have paid the expenses of several staff members to conduct trainings for Canadian higher education and rehabilitation professionals.

Coastline's ABI Program is the only community college program (in any discipline) in the country which has been awarded three different grants from the U.S. Department of Education's Fund for the Improvement of Postsecondary Education (FIPSE). The first grant resulted in the development of a Behavior Rating Scale. The second grant, completed last year, produced a comprehensive curriculum package linked to a computerized prescriptive assessment.

Currently in its first year, our third FIPSE grant is to design, develop and pilot a model program to train paraprofessional and professional specialists in the field of cognitive rehabilitation. The vocational certificate program will be designed primarily for

distance delivery over the Internet, but components could also be replicated for local delivery at other colleges. The certificate program will meet both pre-service and in-service needs for a variety of educational and rehabilitation workers and may be used as the terminal goal for students or as the major for an associate in arts degree. Our primary target audience will be those who provide cognitive retraining in an educational setting. Many community college faculty across the state have already expressed interest in enrolling.

Effect on Under-Represented Groups

Access. Students with acquired brain injuries are, by definition, members of an under represented group: the disability group. Coastline's ABI Program affords wide access; many students relocate from other counties, states or even foreign countries (e.g., Belgium), to attend the program.

The ABI Program is diverse in the ethnicity of its student body. Sixty-seven percent are Caucasian, 12% are Hispanic, 5% are of Asian descent, and 3% are African-American.[5]

Retention/Completion/Transfer. Approximately three quarters of students in the program complete it and receive certificates. This retention is especially impressive in light of the fact that many students leave the program when their needs have been met; i.e., they become employed or are successful in regular classes and no longer require the support of the full program. Such students transition to working with the disabilities services coordinator at Coastline or at the college where the student enrolls. (Often, students travel great distances, involving as much as two-hour commutes via public transportation, to attend the ABI Program. They are understandably anxious to transition to their local community college for regular classes or to a particular vocational program not available at Coastline.)

Outcomes. A study of graduates from 1995 showed that 98% of graduates of the ABI Program successfully transitioned to productive social roles: 58% transitioned to school, 22% obtained employment, and 10% moved on to volunteer positions.

Promise for Replication

With the assistance of Coastline Associate Professor Michelle Wild, faculty from Cerro Coso and Los Angeles Pierce Colleges have already replicated successful smaller scale versions of Coastline's ABI Program, as has the University of Baltimore. Her experience and that of other Coastline faculty in providing consultation to various schools led to recognition of the need for a systematic method of disseminating our program.

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[5] The remainder are non-respondent (12%) or "other-non-white" (2%).

ABI Program faculty explicitly designed the current version of the program for replication under a FIPSE grant. The grant entailed the design, development, and evaluation of a comprehensive and detailed curriculum package for use at the secondary and postsecondary levels in the re-education of teenagers and adults who have acquired brain injuries. The product is named C^6A^3BI ("cabby"), which stands for "Coastline Community College Comprehensive Cognitive-Retraining Curriculum for Adults and Adolescents with Acquired Brain Injury."

The C^6A^3BI package, now being disseminated, includes: (1) a detailed model for cost-effective cognitive retraining; (2) a core curriculum (including instructor notes, student handouts, and external resources) for cognitive retraining; and (3) a computer-based assessment linked to prescriptive planning (see Table 1). The computer-based assessment, designed by Coastline faculty, not only assesses a student's skills, but also generates a prescription of curriculum appropriate to meet that student's needs (see attached).

The College presented the complete C^6A^3BI package to board members of the National Cognitive Recovery Foundation (NCRF), who were extremely enthusiastic. Pressures from the managed care industry have increased the numbers of brain injury survivors who return to the community without requisite transition skills. In response, NCRF, a private foundation, was created[6] with the goal of helping institutions raise funds in order to establish cost-effective cognitive retraining programs like Coastline's.

When a group from the ABI Program presented C^6A^3BI to the Canadian educators and rehabilitation professionals at the Pacific Coast Brain Injury Conference, they were so impressed that one ordered the Memory/Attention component and another ordered the entire package.

Table 1. Contents of the C^6A^3BI Package

Component:	Contains:
C^6A^3BI Overview	• Printed overview with explanation of C^6A^3BI Model, a step-by-step walk-through of C^6A^3BI's components and how they relate to one another, instructions for software installation, and C^6A^3BI Assessment documentation • Computer-based multimedia presentation of C^6A^3BI Model for use by administrators, instructors, and/or students • Lists of existing resources for figural, verbal, and critical thinking skills • Lists of Application Class exercises classified by related cognitive skills
	• Introduction to the two components of Psychosocial Class

[6]NCRF is led by Pepperdine University Professor of Neuropsychology, Daniel Levinson, Ph.D. and Michael Lee, an alumnus of Coastline's ABI Program.

Psychosocial	(processing/problem-solving and brain injury curriculum)
	• Information regarding student placement, class profiles, and monitoring student progress
	• Brain injury curriculum—four complete units of instruction including lesson plans, detailed instructor notes, and student handouts and tests:
	  • Pre-Injury Personality
	  • Neuropsychological Effects of Brain Injury
	  • Coping with Brain Injury
	  • Life After Brain Injury—What Next?

Memory/Attention	• Complete Memory Class curriculum, including instructor notes, lesson plans, and student handouts • Computer-based multimedia presentation explaining the various types of attention, with text and video examples
Assessment	Computer-based assessment, featuring: • Easy administration • Automatic record-keeping • Links to prescriptive curriculum • Equivalent test forms • Report capabilities • Subtests cover figural skills, verbal skills, critical thinking skills, and application exercises
Critical Thinking	• Series of lessons introducing definition and model of critical thinking (includes instructor notes and student handouts) • Sample critical thinking lessons in each of our seven critical thinking topic areas • Resource list of critical thinking texts, including categorization by topic area of chapters/sections/page numbers
Computer Lab	• Student manual containing scoresheets for many software programs that may be used for cognitive remediation • Detailed student worksheets for utilizing "edutainment" CD-ROM software for critical thinking activities • Comprehensive list of suggested software and distributors

Project Director Stacey Hunter Schwartz, Ph.D. presented the C^6A^3BI at the California Association of Resource Specialists (K-12 special education faculty) conference in February, and one school has already purchased the assessment.

At the California Community College Chancellor's "Megaconference" in March, Dr. Schwartz, Professor Wild and FIPSE Project Coordinator Janet Heck presented the C^6A^3BI to faculty from Disabled Students Programs and Services (DSPS) and other disciplines. Audience members were excited about applying the C^6A^3BI curriculum (e.g., critical thinking skills training) to new target populations, i.e., Basic Skills, ESL, and Learning Disabled students. Coastline is currently pursuing funding opportunities for training California community college faculty in DSPS and in other disciplines to implement C^6A^3BI materials.

Support Services for Students

Coastline, a college "without a campus," provides support services for students with all types of disabilities enrolled in a variety of degree-applicable credit courses, including both general education and vocational courses, at numerous Coastline instructional sites. Services include, but are not limited to, registration assistance, test proctoring, note taking assistance, tutoring and counseling.

Referrals to and from four-year institutions (e.g., UC Irvine, CSU Fullerton and CSU Long Beach) are common, and our staff have connections to Disabled Students Services personnel at those institutions as well as with DSPS staff at neighboring community colleges. Such relationships assure that students transitioning to further credit courses receive appropriate services.

Conclusion

The Coastline Community College Acquired Brain Injury Program has a proven history of two decades of satisfied students, successful alumni, effective instruction, and innovative faculty. The experience and knowledge of its faculty has already been packaged for dissemination. These same faculty are developing an on-line program to teach others how to help their students beat the odds to achieve success. The Coastline ABI Program represents a shining example of how the California Community College system changes lives.

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